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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/612,826 | 07/01/2003 | Brian Nash | 218.1042US | 3881 |
| 23280 7590 10/10/2007 DAVIDSON, DAVIDSON & KAPPEL, LLC 485 SEVENTH AVENUE, 14TH FLOOR NEW YORK, NY 10018 | | | EXAMINER ZHE, MENG YAO | |
| | | | ART UNIT 2195 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/612,826 | Applicant(s) NASH ET AL. | |
| | Examiner MengYao Zhe | Art Unit 2195 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>8/2/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-16 are presented for examination.

Claim Objections

2. Claim 16 is objected to because of the following informalities: line 5, the applicant states "representing a latest stop time its respective process". The word "of" seems to be missing, making this sentence unclear. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. The following claim languages are unclear and indefinite:

- i) Claim 1, lines 10-11, it is unclear how the "reload value" is calculated <i.e. it claims that the reload value is equal to a number of time increments until a next event. If so, where is the starting event? Where is it incrementing from? The current time?>.

Furthermore, it is uncertain as to what is meant by “a next event” <i.e. what is “a next event” next to? Is it next to a current event?>.

lines 12-13, it is not clearly understood as to how the “time out event” is related to “next event” in line 11, and “a series of events” in line 4 <i.e. is the time out even part of the series of events that are stored in the table? How is the time out event determined? Is it the equivalent of the next event, such that the timer times out at the arrival of the next event?>.

Claim 7 has the same deficiencies as claim 1 above.

ii) Claim 3, it is uncertain as to what is “the process already executing” <i.e. is it the “one process starts execution” or is it the “another process is executing”?>.

iii) Claim 6, it is not clearly understood how the “enable time” is related to the “time out event” and “a series of events” in claim 1 <i.e. is the enable time also an event that needs to be tracked by the timer like a series of events used to start execution of processes in claim 1? If so, is the enable time also entered into the table like the rest?>.

iv) Claim 10, it is unclear how the ISR is disabled and enabled <i.e. the claim states “where in after execution of the ISR based on the timeout of its start time, the ISR is disabled...”. It is confusing

what triggers the enabling and disabling of the ISR. Is it enabled upon the expiration of the predetermined period of time or is it enabled upon the timeout of its start time?>.

v) Claim 11 has the same deficiencies as claim 1 above, moreover, it is unclear what is meant by "each reload value being equal to a number of time increments until a next one of a start time and deadline..." in lines 12-14 <i.e. how can a reload value be set to both a start time and deadline? Which one is it?>.

vi) Claim 12, lines 3-4, it is uncertain what is meant by "starting a plurality of processes based on a time out of a first one of the timers" <i.e. are the plurality of processes all have the same start time, thus allowing only one timer to keep track of the plurality of processes?>

lines 5-7, it is unclear how only "a second one of the timers" can stop a plurality of processes, each with its own "deadline specified in the time table" <i.e. do they all have the same deadline, therefore making it possible to using only one timer to stop all of the processes?>

lines 8-12, it is unclear how the "reload value" is calculated <i.e. it claims that the reload value is equal to a number of time increments until a start time and deadline. If so, where is the starting event? Where is it incrementing from? The current time?>.

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Furthermore, it is uncertain as to what is meant by "a next start time" and "next deadline" <i.e. what are they next to? Is it next to a current start time or current deadline?>.

Claim 14 has the same deficiencies as claim 12 above.

vii) Claim 15, the entire claim is badly phrased, making it confusing and unclear as to how an ISR is enable and disabled using a timer and reload values.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 7-8, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Chou et al., Patent No. 5,902,352 (hereafter Chou).

7. As per claims 1, 7, Chou teaches the invention as claimed including a method for scheduling execution of one or more processes in a computer, comprising the steps of:

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providing a timer (Column 5, lines 6-10);

providing a series of events for each process of a preselected set of processes, the events comprising a start time for each process (Column 17, lines 9-20);

providing a table (Column 17, lines 19-20);

storing each event in the table (Column 17, lines 19-20);

operating the timer to be set for a time out at each of a series of reload values, each reload value being equal to a number of time increments until a next event in the table (Column 5, line 58-Column 6, line 10);

executing the plurality of processes on the computer based upon the series of events, each process starting execution based on the timeout of its respective time out event on the timer (abstract).

8. As per claims 2, 8, 16, Chou teaches wherein the events further include a deadline for each process of the preselected set of processes; based on a time out of the timer, stopping execution of an executing process regardless of whether the process has stopped execution normally, each process stopping execution according to the corresponding deadline (Column 17, lines 19-17; Column 18, lines 5-15).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al., patent No. 5,902,352 (hereafter Chou) in view of Rajaraman et al. (hereafter Rajaraman), U.S. Patent No. 5,838,957.

11. Rajaraman was cited in the last office action.

12. As per claims 12, 14, Chou does not teach the usage of a plurality of timers where the first timer is set for a time out at each of a series of reload values, each reload value being equal to a number of time increments until a next start time in the time table. Furthermore, May does not teach the usage of a plurality of timers where the second timer is set for a time out at each of a series of reload values, each reload value being equal to a number of time increments until a next deadline in the time table;

Rajaraman teaches the usage of a plurality of timers that is set to expire at different times for the purpose of indicating the occurrences of different events (*abstract; column 1, lines 5-12; column 1, lines 44-60*).

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It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have modified the invention of Chou with setting a plurality of three timers to expire at different times, as taught by Rajaraman, because the first timer enables the indication of the start of new processes and the second timer enables the indication of the end of current processes;

13. As per claims 13, 15, Chou teaches a timer can generate interrupts to an ISR (Column 6, lines 7-16: the interrupt controller is the equivalent of the ISR).

Chou does not specifically teach wherein each process to be scheduled comprises an ISR, where upon execution of the ISR, providing an enable time, disabling the ISR after execution, and enabling the ISR upon expiration of the enable time. However, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have the ISR, as taught by Chou, to be running as a process that has its own schedule, where it needs to be timed with a timer, so that it may be disabled and enabled just like any other processes in order to service interrupts.

14. Claims 3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al., patent No. 5,902,352 (hereafter Chou) in view of May et al., Patent No. 4,989,133 (hereafter May).

15. May was cited in the last office action.

16. As per claims 3, 11, Chou does not teach if one of the processes starts execution while another process is executing, preempting the process already executing and if one of the processes has been preempted and the process that preempted the process stops execution, resuming the process that has been preempted.

May teaches if one of the processes starts execution while another process is executing, preempting the process already executing (*column 20, lines 29 to 40*); and if one of the processes has been preempted and the process that preempted the process stops execution, resuming the process that has been preempted (*achieved by procedures such as TimeSlice, InsertInTimerList, etc.; column 20, lines 28 to 40*) for the purpose of allowing opportunities for other processes to be executed.

It would have been obvious for one having ordinary skill in the art at the time of the applicant's invention to combine the teachings of Chou with, if one of the processes starts execution while another process is executing, preempting the process already executing and if one of the processes has been preempted and the process that preempted the process stops execution, resuming the process that has been preempted, as taught by May, because it allows opportunities for other processes to be executed.

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17. Claims 4-6, and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al., patent No. 5,902,352 (hereafter Chou)

As per claims 4, 5, 6, 9, 10, Chou teaches a timer can generate interrupts to an ISR (Column 6, lines 7-16: the interrupt controller is the equivalent of the ISR).

Chou does not specifically teach wherein each process to be scheduled comprises an ISR, where upon execution of the ISR, providing an enable time, disabling the ISR after execution, and enabling the ISR upon expiration of the enable time. However, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have the ISR, as taught by Chou, to be running as a process that has its own schedule, where it needs to be timed with a timer, so that it may be disabled and enabled just like any other processes in order to service interrupts.

Response to Arguments

18. Applicant's arguments filed on 8/2/2007 regarding to claims 1-15 have been fully considered, but they are moot in view of the new ground of rejection.

Conclusion

19. Applicants' amendments necessitated the new grounds of rejection presented in this office action. Accordingly, **THIS ACTION IS MADE NON-**

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FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MengYao Zhe whose telephone number is 571-272-6946. The examiner can normally be reached on Monday Through Friday, 10:00 - 8:00 EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached at 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100